



**INTERPRETATIONS & APPLICATIONS  
OF BUILDING CODES & REGULATIONS #98-5**

**CODE SECTION :                    NEC 810 - E (amended).**

**Orig. 02/10/98, Rev. 03/08/02**

**SUBJECT :    PUBLIC SAFETY RADIO AMPLICATION SYSTEM**

Adequate radio coverage for city emergency service workers

The frequency range which must be supported shall be 806 mhz to 869 mhz, or as required by the city of Scottsdale police department, 153 mhz to 155 mhz, or as required by Rural/Metro fire department.

Adequate radio coverage is defined as meeting a minimum of 3 by 3 for signal strength and intelligibility as is defined below:

Signal Strength-

- 0 - no detectable signal
- 1 - barely detectable
- 2 - detectable with difficulty
- 3 - detectable at all times
- 4 - strong signal, detectable at all times
- 5 - any increase in signal would overload the system

Intelligibility-

- 0 - unintelligible-
- 1 - intelligible with extreme difficulty (many repetitions required)
- 2 - intelligible with difficulty (repetition required)
- 3 - intelligible (repetition seldom required)
- 4 - intelligible at all times
- 5 - hard to imagine how it could be better (super hi-fi)

(a) a signal strength detectable 90 % of the time, available in 85% of the area of each floor of the building when transmitted from the city of Scottsdale communications systems.

(b) a minimum signal strength which is intelligible 90 % of the time, received at the city of Scottsdale communications systems when transmitted from 85% of the area of each floor.

The building official may require that sufficient evidence or proof be submitted to substantiate compliance with this provision of the code before a building permit is issued. The plans and specifications, and other data, filed by an applicant for permit shall be reviewed by the building official. Such plans may be reviewed by other departments of this jurisdiction to verify compliance with this provision of the code.

Buildings shall be equipped to achieve the required adequate radio coverage  
Enclosed spaces and parking structures shall be furnished to approximate the intended use at the time of testing.

The approved radio enhancement system will replace the communications system described in IBC 907.2.12.3, and IFC 907.2.12.3.

## Article 810 - E:

### E. PUBLIC SAFETY RADIO AMPLIFICATION SYSTEM.

810-80. Radio Coverage. Except as otherwise provided, no person shall erect, construct or modify any building or structure or any part thereof, or cause the same to be done which fails to support adequate radio coverage for city emergency service workers, including but not limited to firefighters and police officers. A certificate of occupancy may not be issued for any building or structure which fails to comply with this requirement.

The frequency range which must be supported shall be 806 mhz to 869 mhz, or as required by the City of Scottsdale police department, and 153 mhz to 155 mhz, or as required by Rural Metro Fire Department.

For purposes of this section, adequate radio coverage shall include all of the following:

(a) A minimum signal strength of one (1) microvolt available in 85% of the area of each floor of the building when transmitted from the City of Scottsdale communications systems.

(b) A minimum signal strength of one (1) microvolt received at the City of Scottsdale communications systems when transmitted from 85% of the area of each floor.

(c) A 90% reliability factor.

The building official may require that sufficient evidence or proof be submitted to substantiate compliance with this provision of the code before a building permit is issued. The plans and specifications, and other data, filed by an applicant for permit shall be reviewed by the building official. Such plans may be reviewed by other departments of this jurisdiction to verify compliance with this provision of the code.

810-81. Enhanced Amplification Systems. Buildings and structures over thirty-five (35) feet in height, buildings with below grade spaces or parking, and other buildings where required to provide adequate signal strength, shall be equipped with any of the following to achieve the required adequate radio coverage: radiating cable system(s) or internal multiple antenna system(s) with 800 mhz and 150 mhz amplification system(s) as needed. If any part of the installed system or systems contains an electrically powered component, the system shall be capable of operating on an independent battery and/or generator system for a period of at least two (2) hours without external power input. The battery system shall automatically charge in the presence of an external power input.

#### 810-82. Testing Procedures.

(a) Initial tests: The building official may require tests as evidence of compliance to be made at no expense to this jurisdiction, to be performed by the installer in the presence an agent of the City of Scottsdale. A certificate of occupancy may not be issued for any building or structure which fails to comply with this test.

(b) Annual tests: Will be conducted by rural/metro fire department and/or the City of Scottsdale Police Department in conjunction with inspection procedures.

810-83. Uses Where Not Required. This section shall not apply to any single-family residence. The requirements of this section may be waived by the building official for buildings which do not have below grade spaces or parking."